

DOCUMENT RESUME

ED 175 774

SO 011 941

AUTHOR Shaw, Terry
TITLE Criterion Referenced Evaluation for the Social Studies.
PUB DATE May 79
NOTE 31p.
EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Decision Making Skills; Elementary Education; Interpretive Skills; *Multiple Choice Tests; Problem Solving; *Process Education; *Research Skills; *Social Studies; Student Ability; *Student Evaluation

ABSTRACT

The test is designed to assess upper elementary students' competency in process skills used in making decisions and solving problems in the social studies. The skills tested are those identified by the American Association for the Advancement of Science, and include observing, classifying, measuring, using numbers, using space and time relationships, communicating, predicting, inferring, manipulating variables, making operational definitions, forming hypotheses, interpreting data, and experimenting. Developed for use with sixth grade students, the test can also be used with seventh and eighth graders. Estimated readability level is 5.8 as measured by the Dale-Chall readability formula. The test is comprised of sixty multiple choice questions. The 51 objectives listed are accompanied by specific test items and the correct answer for each question. The test was used in the author's dissertation (1977) with 350 sixth grade students and was revised again to eliminate or clarify some items. (Author/CK)

* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *

ED175774

"PERMISSION TO REPRODUCE THIS
MATERIAL HAS BEEN GRANTED BY

Terry Shaw

TO THE EDUCATIONAL RESOURCES
INFORMATION CENTER (ERIC)."

CRITERION REFERENCED EVALUATION FOR THE
SOCIAL STUDIES

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

By Terry Shaw, Assistant Professor
Curriculum and Instruction

College of Education
Kansas State University
Manhattan, Kansas 66506

146 110 65
S 011 941

PREFACE

One of the primary goals of public education in this country is to give future citizens the skills and knowledge they need in order to make decisions and solve problems throughout their life. The American Association for the Advancement of Science has identified several process skills which are considered important in making decisions and solving problems. These skills include observing, classifying, measuring, using numbers, using space and time relationships, communicating, predicting, inferring, manipulating variables, making operational definitions, forming hypothesis, interpreting data, and experimenting.

This test contains several items based on each one of these process skills (see the list of criteria for each test item). Many curricula and most standardized tests do not emphasize these process skills, however. If a teacher is attempting to address himself or herself to these decision making and problem solving skills, they should find this test helpful in assessing their student's level of competency. The test could also be used to help teachers or researchers gain ideas on question content and design so that they could develop their own instrument better suited to their needs.

The test was developed for sixth grade students but could also be used for seventh and eighth grade students. Using the Dale-Chall readability formula and assuming student familiarity with the metric system (gram, meter, etc.), the estimated readability level is 5.8. The content validity was judged by a panel of experts. The test was piloted, revised, used in the authors dissertation (1977) with 350 sixth grade students and was revised again to eliminate or clarify some items.

Dr. Terry Shaw, Asst. Prof.
Department of Curriculum & Instruction
Kansas State University
Manhattan, Kansas

Objectives and Answers for CRESS

NUMBER	OBJECTIVE	TEST ITEMS CORRESPONDING TO THIS OBJECTIVE	CORRECT ANSWER
1	Estimate the area of a circle or an irregular figure which is gridded by counting "about how many" square centimeters are contained in the figure.	1	C
2	Make a logical prediction based on data from a bar graph.	2	C
3	Recognize a term which needs to be operationally defined.	3 28	B D
4	Identify a controlled variable in an experiment.	4 44 52	A B A
5	Order a set of events in terms of the temporal order in which they happened.	5	C
6	Identify how a set of objects can be divided into a specified number of groups when objects differ in size, with other properties varying.	6	A
7	Identify what property was used to divide a set of objects into groups, when objects differ in two values of one property.	7 13	D C
8	Predict whether two objects could travel at the same speed or whether one would go faster, given information about starting and ending points, times and distances traveled.	8	A
9	Identify an object or term by using an operational definition and interpreting data from a bar graph.	9 10	C A
10	Identify the group into which a given object should be placed.	11	A

NUMBER	OBJECTIVE	TEST ITEMS CORRESPONDING TO THIS OBJECTIVE	CORRECT ANSWER
11	Identify what property was used to divide a set of objects into groups, when objects differ in two values of one property.	12	B
12	Choose the type of graph which is most appropriate to represent a given set of data.	14	C
13	Predict the event which would logically occur next in a sequence.	15	B
14	Identify a correct sequence of steps for testing a hypothesis.	16	B
15	Calculate and identify the average of a given set of data.	17	A
16	Use cardinal directions when identifying the route between given locations on a simple map.	18	C
17	Locate several points, given the rectangular coordinates.	19	A
18	Distinguish between statements of observation and statements of inference.	20	B
19	Distinguish between observations and predictions in a given example.	21	C
20	Identify touching as an appropriate method of observation in a particular instance.	22	D
21	Identify a definition of the term variable.	23	A
22	Identify the decimal fraction which represents a given amount.	24	D
23	Identify human error as an uncontrolled variable in a given experiment.	25	D
24	Read a distance scale on a map and identify the distance from one point to another.	26	C
25	Identify the standard metric units of capacity measurement.	27	C
26	Identify the hypothesis which is being tested in an experiment.	29 51	C D

NUMBER	OBJECTIVES	TEST ITEMS CORRESPONDING TO THIS OBJECTIVE	CORRECT ANSWER
27	Identify data found on a line graph.	30	A
28	Make a logical prediction based on a line graph.	31	B
29	Identify variables which should be held constant in an experiment.	32	C
30	Identify the manipulated variable in an experiment.	33 45 49	D C D
31	Identify the responding variable in an experiment.	34 54	D B
32	Identify data on a line graph that supports a hypothesis.	35	A
33	Write or select a series of decimal fractions which is in correct ascending or descending order.	36	C
34	Distinguish between statements of observation and inference in a paragraph.	37	A
35	Distinguish between statements of observation and inference in a pictured situation.	38	C
36	Solve a word problem using the addition of decimal fractions.	39	D
37	Select a hypothesis from a group of statements.	40	C
38	Locate a specific piece of information on a two-dimensional table.	41	D
39	Make a logical prediction given data in a two-dimensional table.	42	B
40	Identify a prediction which could be made on the basis of a particular set of observations.	43	A
41	Locate a specific piece of information on a bar graph.	46	B
42	Make comparisons between parts of a bar graph.	47	D

NUMBER	OBJECTIVES	TEST ITEMS CORRESPONDING TO THIS OBJECTIVE	CORRECT ANSWER
43	Select a measurement that is more precise than other measurements,	48	B
44	Identify the sense of senses used for observation in a given story,	49	B
45	Distinguish between statements of observation and statements of opinion,	50	A
46	Identify the best method of testing a hypothesis,	55	C
47	Identify an observation that supports a given hypothesis,	56	C
48	Identify a valid inference based on evidence in a given selection,	57	D
49	Identify an inference from observing a pictured situation,	58	C
50	Identify additional observations needed to test an inference,	59	B
51	Identify one or more inferences which might be drawn from a given set of statistics and reports,	60	D

CRESS

Criterion Referenced Evaluation
for the Social Studies

Developed by
Dr. Terry J. Shaw

Revised May 1979

Directions for Marking Your Answers

ANSWER ALL THE QUESTIONS ON THIS TEST ON YOUR ANSWER SHEET. DO NOT MARK IN YOUR BOOKLET.

Each question in this booklet is followed by a set of answers. Only one of the answers is correct. Read each question carefully and choose the answer you think is correct. On your answer sheet, darken the space that matches the answer you choose.

Read the sample question below and notice how the answer has been marked.

SAMPLE X

The country we live in is called

- (A) the earth.
- (B) North America.
- (C) The United States.
- (D) Central America.

" (C) " is the correct response. Therefore " (C) " on your answer is filled in. Notice that the mark is dark and fills the center of the space.

Now try Sample Y.

SAMPLE Y

The highest elected official in the nation is

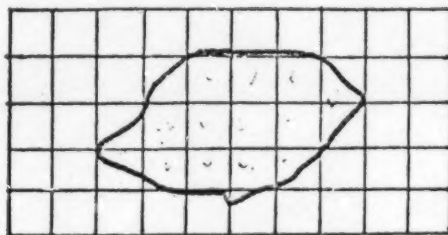
- (A) a Senator
- (B) the President
- (C) a Judge
- (D) the Governor

Since the President is the highest elected official in the nation, you should have marked "(B)" on your answer sheet for Sample Y.

Only one response should be marked for each question. If you change your answer, please erase your first answer completely.

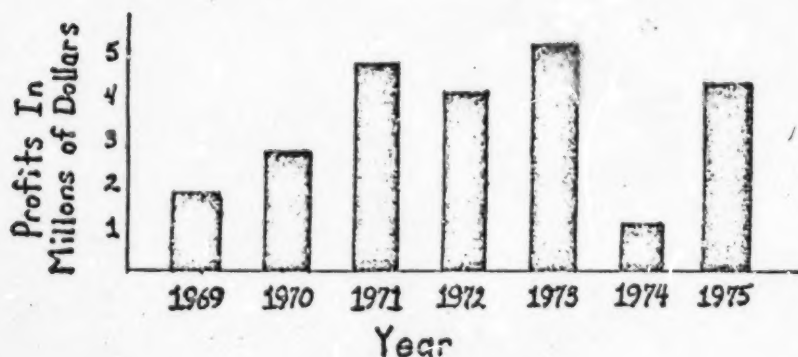
Remember to make a dark mark that fills the space. Use a pencil. Do not use a ballpoint pen.

1. Jim found a small island on a state map. Each block equals one square kilometer. The island has an area of about how many square kilometers?



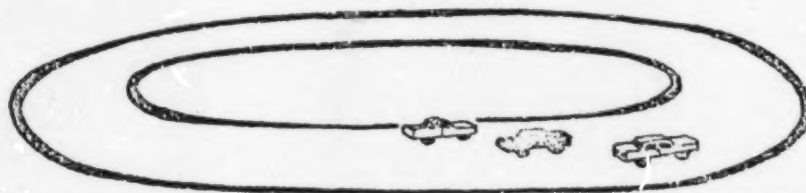
- (A) 9
- (B) 11
- (C) 13
- (D) 15

Profits of Sinar Corporation



2. From the above graph the BEST prediction would be that in 1976 the Sinar Corporation will make
- (A) a larger profit than in 1973
 - (B) a smaller profit than in 1974
 - (C) some profit
 - (D) the same profit as in 1975
3. Some people have stated that "Air pollution lowers the quality of life." Before you can agree or disagree with this statement, you will need to know
- (A) if pollution is harmful.
 - (B) what the people mean by "the quality of life."
 - (C) how much it will cost to get rid of pollution.
 - (D) how many people would lose their jobs if factories which pollute the air were closed.

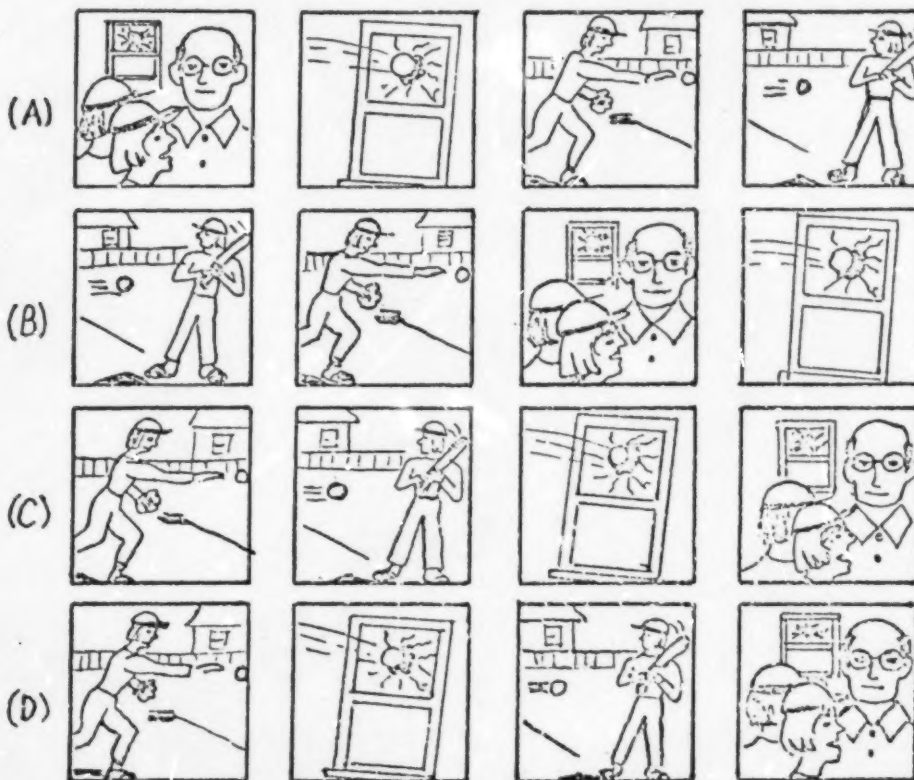
4. Mrs. Thomas was buying a new car. She could not decide whether to buy a small car, a middle-sized car, or a big car. She wanted to know which or three different sizes of cars would go the furthest on four liters of gasoline. She took the three cars to a smooth level test track and put four liters of the same kind of gasoline in each car. Her experiment looked like this



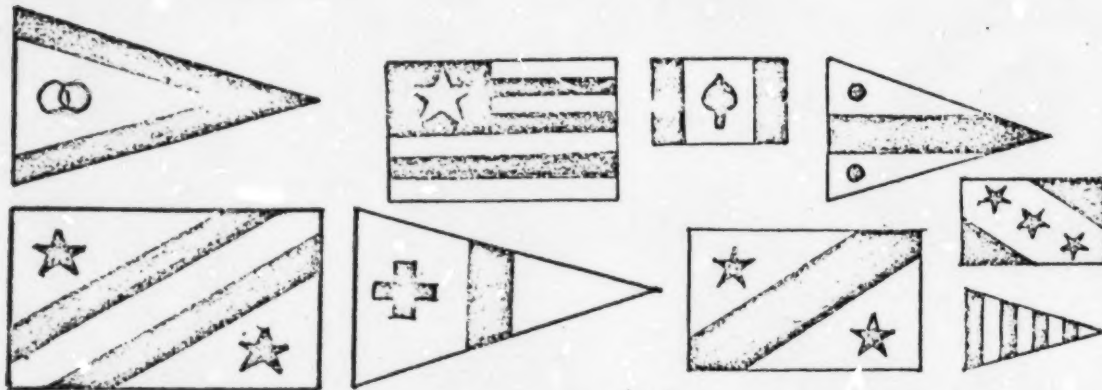
Mrs. Thomas wrote down the distance each car went on four liters of gasoline. What variable did Mrs. Thomas keep the same in her experiment?

- (A) the amount of gasoline
- (B) the kind of car
- (C) the color of the cars
- (D) the distance each car went on the four liters of gasoline.

5. Below are four sets of pictures. One set of pictures shows what happened first, second, third and fourth in the right order. Which set of pictures is in the right order from first to last?



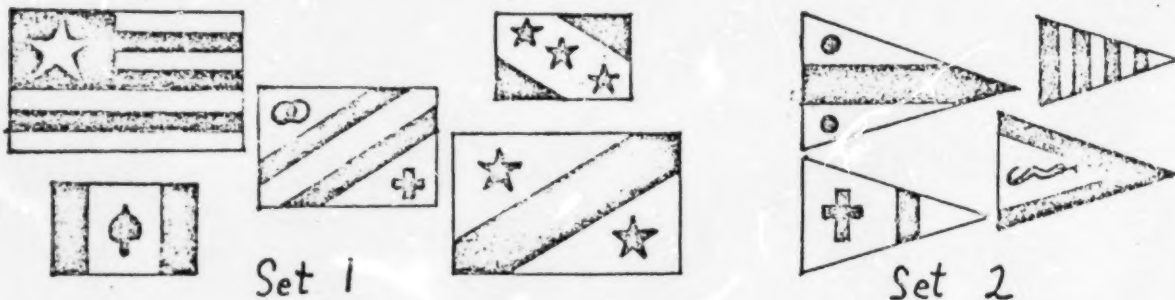
6. Here is a set of flags.



How could you divide this set of flags into THREE groups so that all the flags in a group are alike in some way? Each group of flags would be different from the other groups.

- (A) 3 different sizes of flags
- (B) 3 different shapes of flags
- (C) divide them by whether they have a cross or not
- (D) divide them by the number of stripes

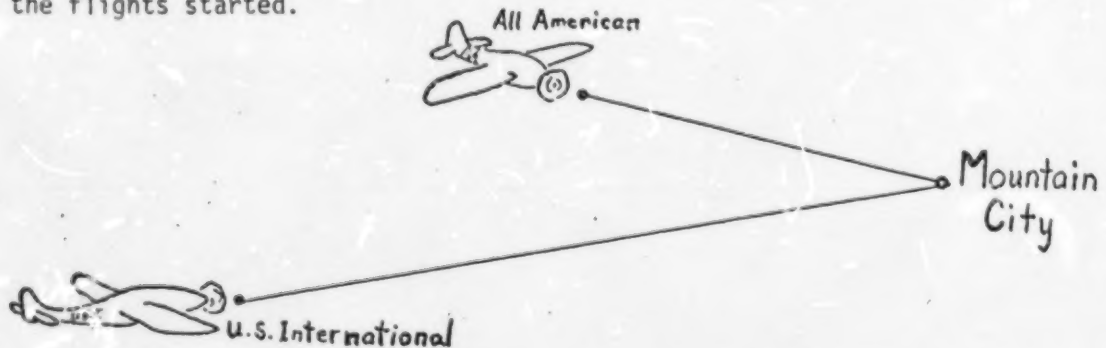
7. The set of flags below has been divided into two sets.



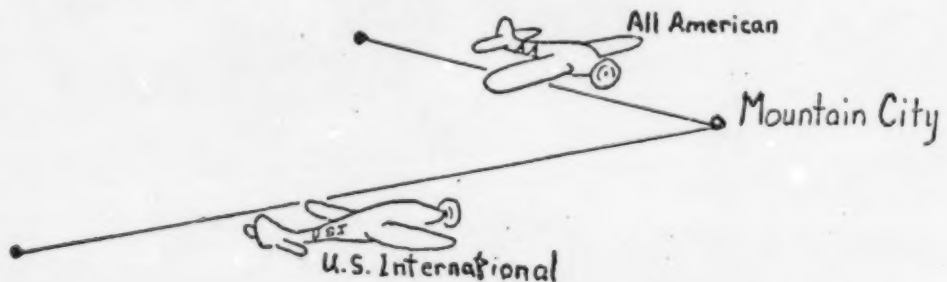
How are the flags divided into 2 sets?

- (A) by size
- (B) by whether they have a cross or not
- (C) by the number of stripes
- (D) by shape

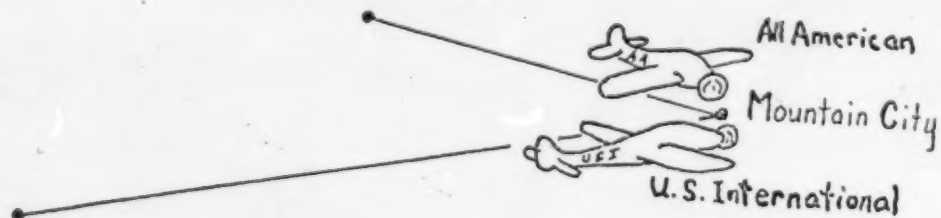
8. Two airplanes had non-stop flights to Mountain City. Both planes left for Mountain City at the same time but the U.S. International plane had twice as far to go as the All American plane. Here is how the planes looked when the flights started.



Here is how the planes looked half way through the flight.



Here is how the two planes looked at the end of the flight. They both reached Mountain City at exactly the same time.



What can be said about the speed of the two planes during the flight?

- (A) The U.S. International plane traveled at a faster speed than the All American plane.
- (B) The All American plane traveled at a faster speed than the U.S. International plane.
- (C) Both planes traveled at the same speed.
- (D) One cannot compare the speeds of the two planes.

9. When a company is making a profit, people say they are "in the black." Look at the amount of money the company receives and the amount of money they spend. A company is "in the black" when they receive more money than they spend.

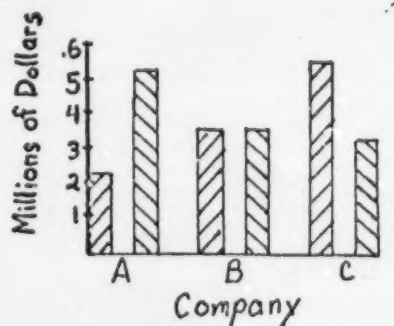
When a company is not making a profit, people say they are "in the red." Look at the amount of money the company receives and the amount of money they spend. A company is "in the red" when they spend more money than they receive.

By looking at the graph at the bottom of the page, which company is "in the black"?

- (A) Company A
- (B) Company B
- (C) Company C
- (D) None of the above.

10. By looking at the graph at the bottom of the page, which company is "in the red"?

- (A) Company A
- (B) Company B
- (C) Company C
- (D) None of the above.



▨ Money Recieved
▨ Money Spent

11. Most of the early American Indians were either farmers or hunters. When people study Indian ruins of hunting tribes they usually find tools such as these



When they dig up ruins of farming tribes, they usually find tools like these



Which of the following tools would most likely be found in the ruins of a farming tribe?

- (A)
- (B)
- (C)
- (D)

12. An archeologist is a person who studies how people lived in the past. One archeologist divided a group of Indian tools into two groups



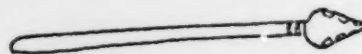
How did he arrange the tools into these two sets?

- (A) Set 1 was used by hunters and Set 2 was used by farmers.
- (B) Set 1 has tools with feathers and Set 2 has tools without feathers.
- (C) Set 1 has tools with handles and Set 2 has tools without handles.
- (D) Set 1 has tools which are weapons and Set 2 has tools which are not weapons.

13. The archeologist formed two other groups of tools



Set 1



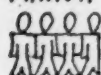
Set 2

How did he arrange the tools into these two sets?

- (A) Set 1 was used by farmers and Set 2 was used by hunters.
- (B) Set 1 has tools without handles and Set 2 has tools with handles.
- (C) Set 1 has tools used to store or grind food and Set 2 has tools which are not used to store or grind food.
- (D) Set 1 has tools not used for weapons and Set 2 has only tools used for weapons.

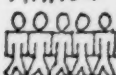
14. Below are figures which represent the population of the United States in certain years. Each drawing of a man represents 20 million people.

75
Million



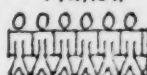
1900

100
Million



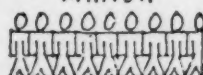
1920

125
Million



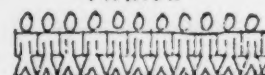
1940

175
Million



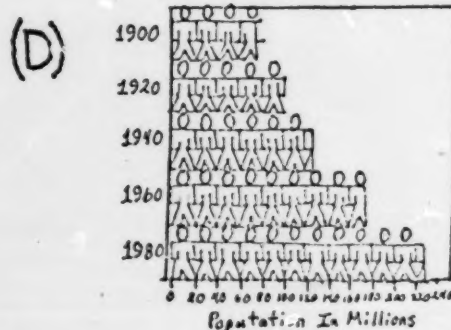
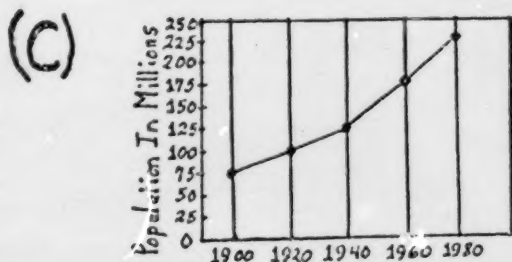
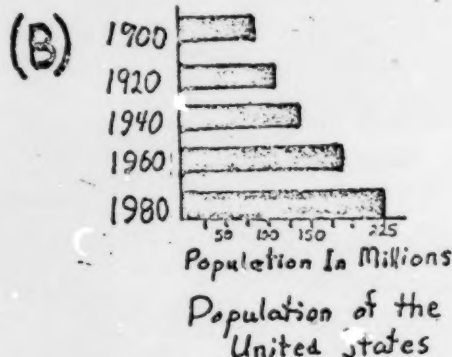
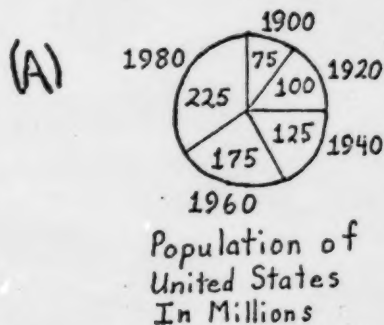
1960

225
Million



1980

Jim wanted to make a graph for social studies using this data. Which kind of graph would be BEST to show this change in population?



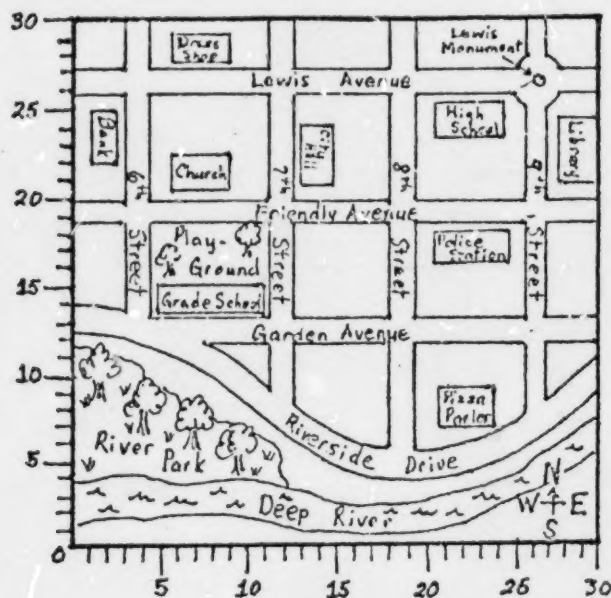
15. The United States government spends more money than it takes in from taxes. It borrows money to make up the difference. The amount of money borrowed is called the national debt. The debt was \$291 billion in 1960, \$323 billion in 1965 and \$383 billion in 1970. What will the debt probably be in 1976?
- (A) \$350 billion
 - (B) \$470 billion
 - (C) \$580 billion
 - (D) \$640 billion
16. A person is doing an experiment in social studies. Which list below gives the correct order of steps the person should use for testing a hypothesis?
- (A)
 1. Do the experiment and write down the results.
 2. Figure out what the variables are and decide how to do the experiment.
 3. Decide if the results supports the hypothesis.
 4. Think about what the results mean and draw conclusions.
 - (B)
 1. Figure out what the variables are and decide how to do the experiment.
 2. Do the experiment and write down the results.
 3. Think about what the results mean and draw conclusions.
 4. Decide if the results support the hypothesis.
 - (C)
 1. Decide if the results supports the hypothesis.
 2. Think about what the results mean and draw conclusions.
 3. Figure out what the variables are and decide how to do the experiment.
 4. Do the experiment and write down the results.
17. While studying the climate of the United States, Tom decided to keep a record of the rainfall in his home town. He did this for three months. Here are his results.

January	17 centimeters
February	14 centimeters
March	8 centimeters

What was the average monthly rainfall during these three months.

- (A) 13 centimeters
- (B) 14 centimeters
- (C) 39 centimeters
- (D) 17 centimeters

Use the map below to answer the next two questions.



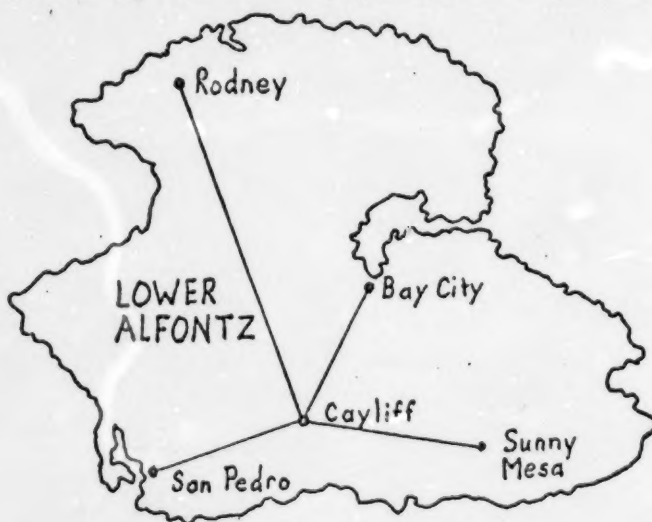
18. Which of the following is a correct set of directions to get from the grade school to the library?
- (A) Go west on Garden Avenue to 9th Street. Go north on 9th Street to Friendly Avenue. The library is north of Friendly Avenue on the west side of 9th Street.
 - (B) Go south on 7th Street to Lewis Avenue. Go east on Lewis Avenue to 9th Street. The library is east of 9th Street and on the north side of Lewis Avenue.
 - (C) Go north on 6th Street to Friendly Avenue. Go east on Friendly Avenue to 9th Street. The library is north of Friendly Avenue and east of 9th Street.
 - (D) Go east on Garden Avenue to 9th Street. Go south on 9th Street to Friendly Avenue. The library is east of 9th Street and south of Friendly Avenue.
19. Look at the map above and find out which set of rectangular coordinates is correct.

	A	B	C	D
Pizza Parlor	(22, 8)	(8,22)	(18,22)	(22,18)
Dress Shop	(7,28)	(7,28)	(28,7)	(28,7)
High School	(22,24)	(24,22)	(24,22)	(22,24)

20. While studying about American Indians, Cheryl attended an Indian pow-wow. Which one of her statements is an inference, instead of an observation?
- (A) "The Indians wore brightly colored war paint."
 - (B) "It takes the Indians hours of practice to learn the dances."
 - (C) "The chief had a large head-dress with over one hundred feathers."
 - (D) "Most of the Indian moccasins were decorated with beads."
21. Some voters were talking about an upcoming election. Which one of their statements was a prediction rather than an observation.
- (A) "Senator Jones says he wants better schools."
 - (B) "Brown says he is for law and order."
 - (C) "Taxes will go up if Jones is re-elected."
 - (D) "Big government is one thing Brown is against."
22. Jim went with his mother and father to buy a new mattress. What is the BEST way to find out if a mattress is hard or soft?
- (A) See if it has air vents and handles on the sides.
 - (B) Measure how thick the mattress is.
 - (C) Find out what kind of material the mattress is made of.
 - (D) Lie down on the mattress.
23. In social studies a variable in an experiment is
- (A) anything in the experiment that can change.
 - (B) what the experiment is about.
 - (C) what is learned by doing the experiment.
 - (D) a method that is used.
24. In a very close election Mrs. Williams won by two and three tenths percent. Which number below is equal to two and three tenths?
- (A) .23
 - (B) .023
 - (C) 23.0
 - (D) 2.3

25. A school had four social studies teachers. All four teachers had just finished a unit on China. Mr. Black, one of the teachers, had lived in China and had brought many interesting things to school to show the students. Mr. Black's students did projects on China. Mrs. Green's students talked about newspaper articles about China. The other teachers had their students answer the questions at the end of the chapter. Since Mr. Black seemed to know more about China than the other teachers, he said he would make out a test to give to all of the students. After giving the test and looking at the results, some of the teachers said the test was not fair for their students. Something was different for the students of each teacher. What variable was not kept the same?

- (A) the way the test was written
- (B) the school where the test was given
- (C) the scores the students made on the test
- (D) the way the unit on China was studied in the different classes.



Scale In Kilometers
0 20 40 60 80 100

26. On the map above, how far is it from Rodney to San Pedro if you follow the road?

- (A) 80 km
- (B) 100 km
- (C) 150 km
- (D) 180 km

27. What units should you use to measure the volume of gasoline in the gas tank of a car?

- (A) square centimeters
- (B) meters
- (C) liters
- (D) kilograms

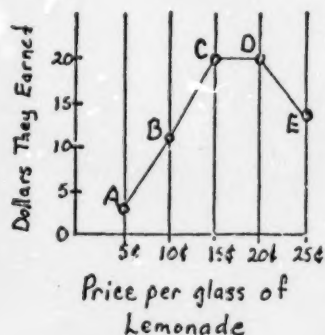
28. People have said, "Living on a farm is living the good life."

Before you can agree or disagree with this statement you will need to know

- (A) how much money farmers make.
- (B) how far away from your friends you will be.
- (C) how much more it will cost to live on a farm.
- (D) what the person meant by "the good life."

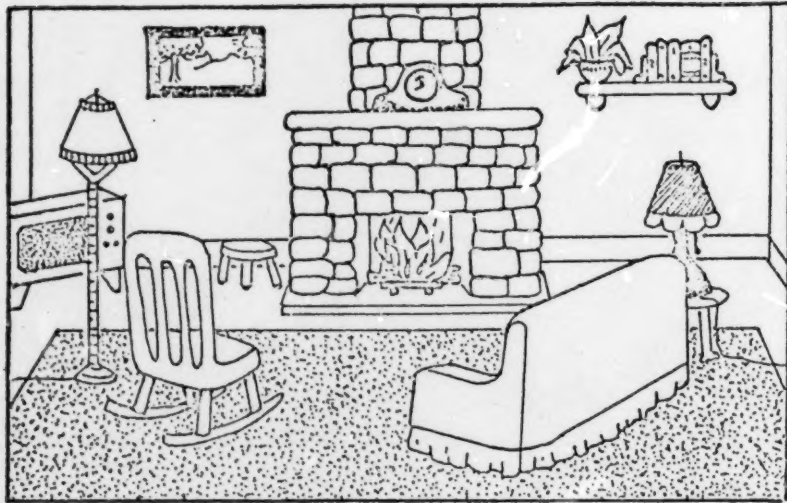
Read the following story and answer the next seven questions.

Bob and Betty made money during the summer by selling lemonade in a lemonade stand at the lake. They had been selling the lemonade for 25¢ a glass. They thought that maybe if they lowered their price, more people would buy lemonade and they could make more money. Each weekend for five weekends, they sold lemonade for a different price. They kept careful records of the amount of money they made at each price. This graph shows their results.



29. The hypothesis Bob and Betty were testing was probably
- (A) the higher the price, the more money they will earn
 - (B) the same amount of lemonade will be sold no matter what the price
 - (C) the lower the price, the more money they will earn
 - (D) they will earn the same amount of money at 15¢ a glass than they do at 20¢ a glass
30. Bob and Betty made the LEAST amount of money when they charged
- (A) 5¢
 - (B) 10¢
 - (C) 15¢
 - (D) 25¢
31. If they had raised the price to 30¢, they probably would
- (A) earn more money than they did at 25¢
 - (B) earn less money than they did at 25¢
 - (C) earn the same amount of money as they did at 25¢
 - (D) not sell any lemonade since the price was so high
32. When doing this experiment Bob and Betty should
- (A) move their stand to a different place each time they change the price
 - (B) give away gum when they charge more for the lemonade so the people would not feel cheated
 - (C) be sure that the lemonade tasted the same all the time
 - (D) lower the price on rainy days to try to sell more lemonade

33. In the experiment Bob and Betty should change
- (A) the size of the glass each time they change the price
 - (B) the number of people buying lemonade
 - (C) the amount of sugar they put in the lemonade
 - (D) only the price for a glass of lemonade
34. The results Bob and Betty were interested in were
- (A) the number of glasses of lemonade they sold
 - (B) how much it cost to make the lemonade
 - (C) the price of a cup of lemonade
 - (D) the amount of money they earned
35. Which part of the graph supports their hypothesis
- (A) the line from A to B
 - (B) the line from C to D
 - (C) the line from D to E
 - (D) the whole graph supports their hypothesis
36. Tom and Bill were drawing a map of their neighborhood. They were measuring the distances on the map in meters. Which list of distances is in order from smallest to largest?
- (A) .2m .12m .37m
 - (B) .15m .49m .089m
 - (C) .029m .18m .6m
 - (D) .58m .62m .077m
37. Jerry and Carla were talking about a recent student council election. "Richard just barely won the election," Carla said. "He will certainly be a good president." "He will work really hard," Jerry agreed. "And the students will support him."
- Which one of their statements is an observation?
- (A) "Richard just barely won the election."
 - (B) "He will certainly be a good president."
 - (C) "He will work really hard."
 - (D) "And the students will support him."



38. Which one of the following is an observation about the picture above?
- (A) The people who live in this house like to sit around the fire.
 - (B) The furniture and the house are old.
 - (C) There are books on the shelf to the right of the fireplace.
 - (D) This room is where the members of the family spend much of their spare time.
39. Jane needed two peices of string for a social studies display. One piece needed to be .7 meters long and the other peice needed to be 2.82 meters long. How much string will she need altogether?
- (A) 2.12 meters
 - (B) 2.89 meters
 - (C) 9.82 meters
 - (D) 3.52 meters

40. Mr. Black had decided to run for State Representative. Mr. Black noticed that all of the people who won in the last election said they would lower taxes. He thought that campaigning for lower taxes might help a candidate be elected. Mr. Black said he was in favor of lower taxes while the person he was running against campaigned for better schools and roads. Sure enough, Mr. Black was elected.

Which sentence from the story tells Mr. Black's hypothesis?

- (A) Mr. Black had decided to run for State Representative.
- (B) The people who won in the last election were for lower taxes.
- (C) He thought that campaigning for lower taxes might help a candidate be elected.
- (D) Mr. Black was elected.

Fourth Class (Parcel Post) Zone Rates

WEIGHT IN POUNDS	ZONES					
	LOCAL	1 & 2	3	4	5	6
	DELIVERY	UP TO 150	151-300 mi.	301-600 mi.	601-1000 mi.	1001-1400 mi.
5	.70	.85	1.00	1.15	1.30	1.45
10	.85	1.15	1.45	1.75	2.05	2.35
15	1.00	1.45	1.90	2.35	2.80	3.25
20	1.15	1.75	2.35	2.95	3.55	4.15
25	1.30	2.05	2.80	?	4.30	5.05

41. Use the table above to help you answer this question. How much would you pay to send a 15 pound package 700 miles?
- (A) \$1.00
 - (B) \$1.30
 - (C) \$2.35
 - (D) \$2.80
42. Use the table above to help you answer this question. Which of the statements below is true? The cost of mailing a 25 pound package 500 miles is
- (A) less than mailing a 15 pound package 900 miles.
 - (B) more than mailing a 15 pound package 900 miles.
 - (C) the same as mailing a 15 pound package 900 miles.
 - (D) more than mailing a 20 pound package 1200 miles.

43. People were food gatherers for the first 500,000 years that they lived on earth. Then about 10,000 years ago they began to grow food. Cities were first built about 6,000 years ago. The first airplane was built about 70 years ago. Only 25 years ago people began to use nuclear power and space vehicles.

Which sentence gives the BEST guess of what will happen based upon what you learned from the story?

- (A) Change will take place more rapidly.
- (B) People will become tired of change.
- (C) Things will stop changing.
- (D) People will want to return to "the good old days."

44. Read the story about the experiment and then answer the two questions that follow.

Mr. Marshall was a farmer and he wanted to know which kind of fertilizer would be best for his corn. He divided his field into three equal parts. He planted the same kind of seed in each section. He put two tons of Brand X fertilizer on one part, used two tons of Brand Y fertilizer on another part and used two tons of Brand Z fertilizer on the third part. When he harvested the corn, he wrote down how much corn he got off of each section. Here are his results.

<u>Brand of Fertilizer</u>	<u>Amount of Corn</u>
Fertilizer X	80 bushels per acre
Fertilizer Y	114 bushels per acre
Fertilizer Z	106 bushels per acre

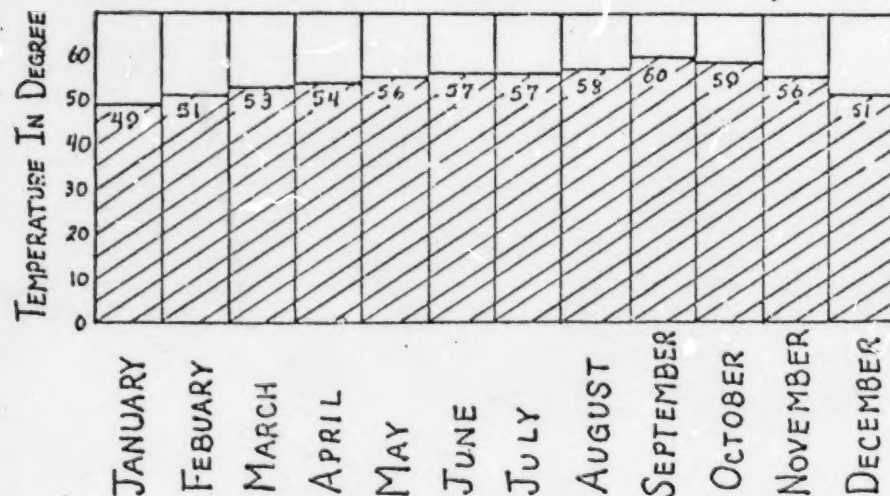
What was kept the same in Mr. Marshall's experiment?

- (A) the brand of fertilizer and the field
- (B) the amount of fertilizer and the kind of seed
- (C) the amount of corn and the kind of seed
- (D) the amount of fertilizer and the brand of fertilizer

45. What did Mr. Marshall change in his experiment?

- (A) the kind of seed
- (B) the amount of fertilizer
- (C) the brand of fertilizer
- (D) the amount of corn

AVERAGE TEMPERATURE - SAN FRANCISCO, CALIF.



46. The temperature graph above shows that the average temperature for April is
- (A) 51
 - (B) 54
 - (C) 57
 - (D) 60
47. By looking at the temperature graph determine which of the following months has a lower average temperature than June
- (A) July
 - (B) August
 - (C) October
 - (D) April
48. Four students observed different things about a country shown on a map. Which student made the most precise observation?
- (A) Fred: Mountains Cover over half the country.
 - (B) Linda: The Delta River is 497 kilometers long.
 - (C) Joe: The population of Capital City is over 1,500,000.
 - (D) Sue: The rainfall varies from less than 20 centimeters to over 250 centimeters per year.

49. In the family living class at school the students were working on sewing projects. Allen had decided to make a T-shirt. The next Saturday Allen and his parents went to the fabric store where Allen looked through the books and picked out a pattern. After choosing a pattern he liked, Allen chose his material. He found some soft material with bright stripes. During the next two weeks Allen worked hard on his shirt. When Allen wore the shirt he was cool and comfortable.

Which of Allen's senses did he use in the story?

- (A) hearing and smell
- (B) touch and sight
- (C) sight and smell
- (D) touch and hearing

50. Read the ad below.

END OF YEAR CLEARANCE
ON SPRINT PICKUPS



PRICES
\$
REDUCED

EPA 28 Miles/Gallon
on Highway

THESE LOW PRICED BARGAINS ARE GOING FAST!

**AMERICA'S HARDEST WORKING
SMALL TRUCK**

✓OUT THESE GREAT FEATURES:

----- AT -----
GEORGE WRIGHT MOTORS
123 POT HOLE ROAD

- *6 Foot Long Bed
- *Sporty Hub Caps
- *4 Speed Transmission
- *Colorful Interior
and Carpeting

Which statement in the ad is an OPINION rather than an observation?

- (A) America's hardest working pickup
- (B) 28 miles per gallon on highway
- (C) 6-foot long bed
- (D) 4 speed transmission

Read the story below and answer the next four questions.

A shopping center manager noticed that stores started selling more as soon as Christmas decorations were put up and Christmas music was being played. The manager wanted to know if the increased sales were caused by the decorations and music. She decided to put up decorations and play Christmas music in half of the stores but not in the other half. After a week she went to ask how much the stores had sold.

51. What hypothesis was the manager testing in her experiment?
- (A) The amount of sales is affected by how close it is to Christmas.
 - (B) The amount of sales is affected by the kinds of things the store sells.
 - (C) The amount of sales is affected by how friendly the sales people are.
 - (D) The amount of sales is affected by whether the decorations were up and the Christmas music was playing.
52. In the shopping center experiment above, what was kept the same?
- (A) the shopping center where the stores were located
 - (B) how much the stores sold
 - (C) when the decorations were put up
 - (D) whether Christmas music was playing
53. In the experiment above, what did the manager change?
- (A) the shopping center where the stores were located
 - (B) how much the stores sold
 - (C) what kinds of things the stores sold
 - (D) whether the stores had Christmas decorations and music
54. In the experiment above, the results the manager was interested in were
- (A) the shopping center where the stores were located
 - (B) how much the stores sold
 - (C) what kinds of things the stores sold
 - (D) whether the stores had Christmas decorations and music

GO ON TO THE NEXT PAGE.

55. The Davis family owned and ran a small circus. Mr. Davis noticed that on some days many more people came to the circus than on other days. He decided to try to find out why this was. He made the hypothesis that maybe the temperature affected how many people came to the circus. He decided to make more observations to test his hypothesis.

Which of the following observations would be most helpful in testing the hypothesis?

- (A) Wait until a rainy day and count how many people come to the circus.
- (B) See if more people come on week-ends than during the week.
- (C) Get records from the weather bureau and see if more people came on warm days.
- (D) See if the animals do their tricks better on warm days.

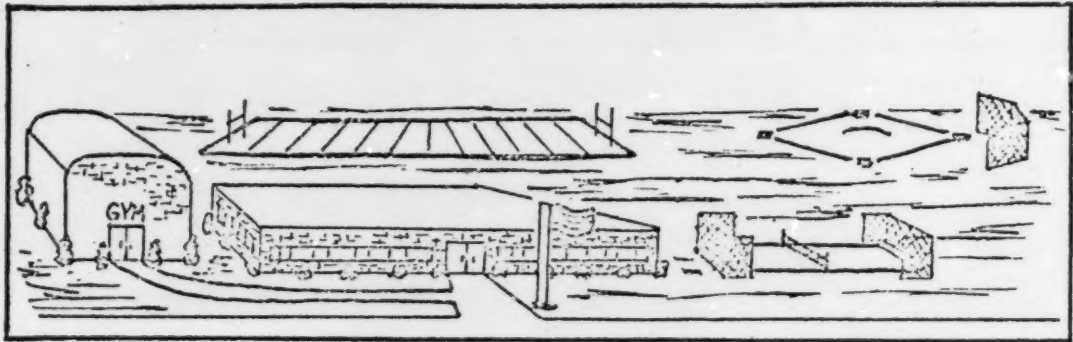
56. Which of the following observation would support Mr. Davis' hypothesis?

- (A) When it rained he did not sell as many tickets.
- (B) He sold more tickets on days when children were out of school.
- (C) On the coldest day of the year very few people came to the circus.
- (D) More people came to the circus on the Fourth of July than on any other day.

57. Mr. Jim Baxter is president of the American Tobacco Growers. He has been asked to speak to a group of senators about a bill they are about to pass. The bill would not allow people to smoke in public buildings, on buses, airplanes or trains. This would cut down on the number of cigarettes people smoke.

How will Mr. Baxter probably feel about the bill?

- (A) He would be for the bill because smoking is dangerous to your health.
- (B) He would be for the bill because many people do not like to be around other people who smoke.
- (C) He would be against the bill because he thinks everyone should smoke.
- (D) He would be against the bill because he probably grows tobacco and wants to sell all he can.



58. Based on the drawing of the school above, what can you tell about this community?
- (A) This is a farming community.
 - (B) Most students who go to this school will go on to college.
 - (C) Sports are very important to the people who live here.
 - (D) This is an all-boy school.
59. A farmer from another country was touring farms in the United States. He noticed that the wheat in this country was much better than the wheat in his country. He thought that maybe the seed the farmers used was better in this country than in his country. The farmer did some experiments and made some observations. Which observation was most helpful in testing his inference?
- (A) Irrigated wheat was better than wheat that was not irrigated.
 - (B) He took some U.S. wheat to his country and found that it produced more wheat than the kind he had been using.
 - (C) Fertilizing the wheat caused it to grow better.
 - (D) Planting the wheat deeper did not improve the crop.

60. Jean made money by having a paper route. She kept a record of her income and expenses. Every once in a while she would take money out of her account to buy things for herself. Below is a copy of the records she kept.

DATE	DEPOSIT	WITHDRAWAL	BALANCE
10/4/75	23 00		70 00
10/10/75		18 00	52 00
11/1/75	25 00		77 00
11/9/75		18 00	59 00
12/3/75	24 00		83 00
12/11/75		18 00	65 00
12/22/75		20 50	44 50
1/4/76	22 00		66 50
1/9/76		18 00	48 50
2/3/76	27 00		75 50
2/12/76		19 00	56 50

Which statement below is the best inference about Jean's account?

- (A) Jean spent \$20.50 for Christmas presents.
- (B) Jean makes mistakes in her records.
- (C) Jean is trying to save money to go to college.
- (D) Jean deposits the money from her paper route regularly.